South Carolina Department of Health and Environmental Control

2600 Bull Street
Columbia, S.C. 29201

Commissioner
Robert S. Jackson, M.D.

MEMORANDUM

TO: Bob Sentelle, Engineer
Bureau of Solid and Hazardous Waste Management

FROM: Suzanna M. Workman, Geologist SMW
Surveillance and Data Management Section
Ground-Water Protection Division

RE: Poole Site
Preliminary Site Investigation
Cherokee County

DATE: November 8, 1984

On October 30, 1984 the writer accompanied Messrs. John Cresswell, Coleman Miles and Eric Strange to the referenced site to conduct a preliminary site investigation. The writer made a well inventory and sampled three private water-supply wells for metals, pH, TDS, volatile organics, nutrients, alkalinity and TOC. A copy of the well inventory is attached (see figure 1).

Geologically, the site is located in the Piedmont Province of South Carolina. Typically, in this province, three lithologic zones are present. At the study site, the surficial soils, consisting of tight, red silty medium to fine sands comprise the first zone. A partially weathered rock zone consisting of dense soil zones interlayered with rock underlies these silty sand soils and comprises the second zone.

These zones comprise the surficial aquifer. Although relatively impermeable with the respect to particle size, these zones evidence fracture networks (secondary porosity) present in the parent rock. It is through these fractures that ground water migrates. Low yields are characteristic of this aquifer, therefore, large diameter (bored or dug) wells are typically installed.

The crystalline rock zone underlies the silty sand and weathered rock zones, and forms the major aquifer for the study area, the Igneous and Metamorphic Aquifer Systems. The specific rock types underlying the study area have been identified as biotite gneiss and migmatite (Overstreet & Bell).

It is reported that these rocks are highly folded and contorted. The contorted nature of these rocks is expressed in the area topography (see attached map) in the form of numerous fracture traces (or lineaments). It is these fracture zones which provide the greatest permeability and therefore, the greatest quantities

of water. Also, if ground-water contamination is present, it is likely that the wells installed along these fractures will be the first to evidence poor water quality. The locations of the fracture traces have been identified in figure 2 using a U.S.G.S. 7.5 minute topographic map.

If you have any questions, please contact me.

SMW/km

Attachment

cc: Appalachia III District

FIGURE 1
MCABEE PROPERTY
GAFFNEY, SOUTH CAROLINA

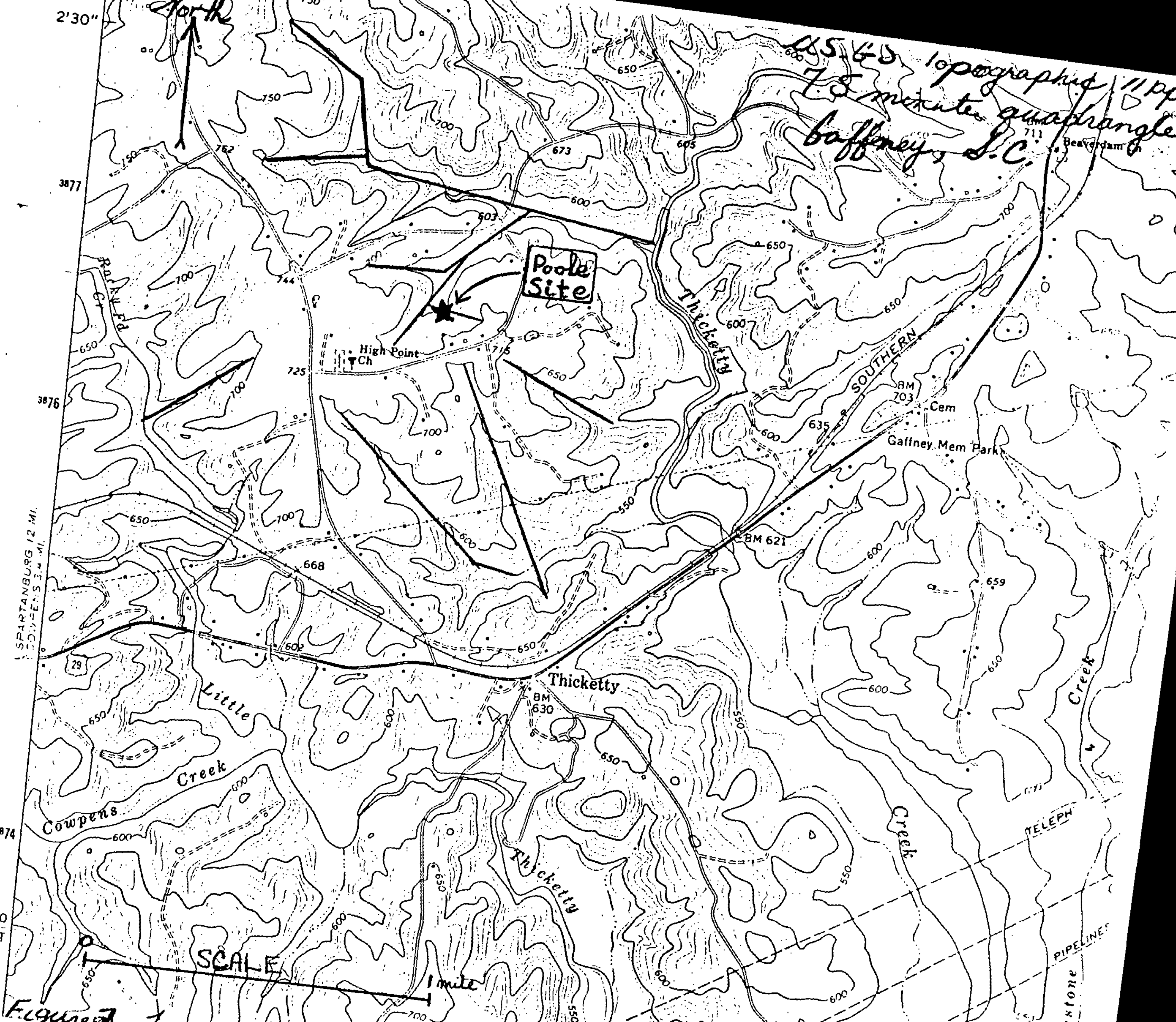

Figure 2. Topographic map showing location of Poole Site, Cherokee County
and its several fracture traces in

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Environmental Quality Control
Analytical Services Data Sheet for Organic Compounds in Solid Waste and Hydrology Samples

Suzanne Barry — Att

Sample Location Atkins Site County Cherokee
Sample Type Monitor well Comments
Date 7/18 Collected By Zucca/Fallon
An "X" in the small column indicates test requested.

Time Collected (Milit.)						
Station No.		Atkins		Bratton		
Lab. No. H		016		017		
Chlorinated hydrocarbons, µg/l						
Endrin, mg/l		<0.0002		<0.0002		
Lindane, mg/l		<0.004		<0.004		
Methoxychlor, mg/l		<0.10		<0.10		
Toxaphene, mg/l		<0.005		<0.005		
Organophosphates, µg/l		<0.10		<0.10		
PCBs, µg/l		<0.50		<0.50		
Other						
Acid Base Neutral	X	None detected	X	None detected		
Vola Org Scan	X	None detected	X	Chloroform —		14.2 µg/l

Comments

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Date Received in Regional Laboratory ____ By ____
Date Released from Regional Laboratory ____ By ____
Date Received in Central Laboratory 7-18-84 By AMT
Date Released from Organic Section 10/2/84 By ____

White--Program; Yellow--Program; Pink--Lab; Gold--Program

DHEC 40-90 (09/81)

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Environmental Quality Control
Analytical Services Data Sheet for Solid Waste and Hydrology

Sample Location Medley Site County Cherokee
Sample Type Pumped-well Comments
Date 7/18 Collected by Fuller/Zucca

An "X" in the small column indicates test requested

Time Collected (Milit.)								
Sample Point		Medley W-1	Sarrett	Sprouse		Medley W-1	Sarrett	Sprouse
Lab No. H		12	13	14	H	12	13	14
NH_3-N, mg/l					Calcium	5	31	9
NO_3/NO_2-N, mg/l					Magnesium	4.4	14	1.2
TKN					Sodium			
Nitrite, N, mg/l					Potassium			
T-P,					Arsenic	<0.005	<0.005	<0.00
Hardness, mg/l calc	X	31	140	27	Barium	<0.5	<0.5	<0.5
Cl, mg/l	X	4.5	325	40	Cadmium	<0.010	<0.00	<0.01
SO_4 mg/l	X	102	18.6	13.9	Chromium	<0.05	<0.05	<0.05
Flashpoint, °F					Copper	0.07	<0.05	0.15
Solids, Total, mg/l					Iron	8	0.31	<0.05
Solids, Tot. Diss, mg/l	X	76	260	74	Lead	<0.05	<0.05	<0.05
Solids, %					Manganese			
pH	X	6.4	6.7	6.0	Mercury	<0.0002	<0.0002	<0.000
Alkalinity mg/l	X	40	125	36	Nickel			
Fluoride, mg/l					Selenium	<0.005	<0.005	<0.005
TOC	X	4.9	2.4	1.6	Silver	<0.05	<0.05	<0.05
Phenols, µg/l	X	<5	<5	<5	Zinc			
COD								
Cyanide, mg/l						mg/l	mg/L	mg/L
MBAS, mg/l								

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GROUND-WATER PROTECTION DIVISION

Remarks:
Preserved
Phenols analyzed in Charleston Lab

Date Received in Regional Laboratory 7/31/84 by Lee Powers
Date Released from Regional Laboratory 8/10/84 by S. Yates
Date Received in Central Laboratory 7-18-84 by AAT
Date Released from Spec & A. A. Section 8-24-84 by CR Harmon
Date Released from Metals Section 8-23-84 by AM Knudsen

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SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Environmental Quality Control
Analytical Services Data Sheet for Solid Waste and Hydrology

Sample Location Medley Drum Site County Cherokee

Sample Type Pumped well Comments

Date 7/18/84 Collected by Faller/Zucca An "X" in the small column indicates test requested

Time Collected (Milit.)								
Sample Point		Pittman		Davis		Pittman		Davis
Lab No. H		018		019	H	018		019
NH_3-N, mg/l					Calcium	15		8
NO_3/NO_2-N, mg/l					Magnesium	3.1		0.8
TKN					Sodium			
Nitrite, N, mg/l					Potassium			
T-P,					Arsenic	X <0.005		X <0.005
Hardness, mg/l Calc	X	50	X	23	Barium	X <0.5		X <0.5
Cl, mg/l	X	5.5	X	2.0	Cadmium	X <0.010		X <0.010
SO_4 mg/l	X	17.7	X	12.4	Chromium	X <0.05		X <0.05
Flashpoint, °F					Copper	X <0.05		X <0.05
Solids, Total, mg/l					Iron	X 0.5		X <0.05
Solids, Tot. Diss, mg/l	X	100	X	84	Lead	X <0.05		X <0.05
Solids, %					Manganese			
pH	X	6.4	X	6.9	Mercury	X <0.0002		X <0.0002
Alkalinity mg/l	X	56	X	38	Nickel			
Fluoride, mg/l					Selenium	X <0.005		X <0.005
TOC	X	1.3	X	1.3	Silver	X <0.05		X <0.05
Phenols, µg/l	X	<5	X	<5	Zinc			
COD								
Cyanide, mg/l						mg/l		mg/l
MBAS, mg/l					Remarks:			

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Date Released from Metals Section 8-23-84 by AM Thompson

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Environmental Quality Control
Analytical Services Data Sheet for Organic Compounds in Solid Waste and ~~Hydrology Samples~~

Sample Location Medley Drum Site County Cherokee
Sample Type Pumped for Well Comments
Date 7/18 Collected By Faller Zarda

An "X" in the small column indicates test requested.

Time Collected (Milit.)				
Station No.		~~Medley W-1 M22-1~~	Sarrett	Sprouse
Lab. No. H		012	013	014
Chlorinated hydrocarbons, µg/l				
Endrin, mg/l		<0.0002	<0.0002	<0.0002
Lindane, mg/l		<0.004	<0.004	<0.004
Methoxychlor, mg/l		<0.10	<0.10	<0.10
Toxaphene, mg/l		<0.005	<0.005	<0.005
Organophosphates, µg/l		<0.10	<0.10	<0.10
PCBs, µg/l		<0.50	<0.50	<0.50
Other				
Acid Base Neutral	X	None detected	None detected	None detected
Vol. Org Scan	X	See attachment	See attachment	See attachment

Comments

Date Received in Regional Laboratory ____ By ____
Date Released from Regional Laboratory ____ By ____
Date Received in Central Laboratory 7-18-84 By AMT
Date Released from Organic Section 10/2/84 By [illegible]

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